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Amendments to the Claims

Listing of Claims

This listing of claims will replace all prior versions of the claims.

Claims 1 – 12 (Canceled)

13. (Original) A method for detecting an endpoint for a plasma processing step in a plasma processing chamber, comprising:

receiving first data identifying a given electrical parameter and a given harmonic of the given electrical parameter;

providing a plasma processing control system, including

a probe coupled to an electrode of the plasma processing chamber and a radio frequency (RF) generator, wherein the probe is configured to provide second data pertaining to a plurality of electrical parameters when the RF generator is energized, and

a processor coupled to the probe and configured to provide third data from the second data, the third data pertaining to a particular harmonic for a particular electrical parameter of the plurality of electrical parameters, the particular electrical parameter being of the same type as the given electrical parameter, the particular harmonic being of the same order as the given harmonic; and

employing the third data for the detecting.

14. (Original) The method of claim 13 wherein the first data further includes parameters identifying expected endpoint characteristics in the given harmonic of the given electrical parameter.

15. (Original) The method of claim 14 wherein the given harmonic is other than a first order harmonic of the given electrical parameter.

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16. (Original) The method of claim 15, wherein the RF generator provides a frequency of about 2 MHz.
17. (Original) The method of claim 15, wherein the RF generator provides a frequency of about 27 MHz.
18. (Original) The method of claim 15, wherein the RF generator provides a frequency of about 60 MHz.
19. (Original) The method of claim 15, wherein the plurality of electrical parameters includes voltage.
20. (Original) The method of claim 15, wherein the plurality of electrical parameters includes phase.
21. (Original) The method of claim 15, wherein the plurality of electrical parameters includes current.
22. (Original) The method of claim 13, wherein the plasma processing step includes dielectric etching.
23. (New) A method for endpoint detection for a plasma processing step in a plasma processing chamber, comprising:
 - receiving first data identifying a given electrical parameter and a given harmonic of the given electrical parameter;
 - providing a plasma processing control system, including
 - a probe coupled to an electrode of the plasma processing chamber and a radio frequency (RF) generator, wherein the probe is configured to provide second data pertaining to a plurality of electrical parameters when the RF generator is energized,

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a processor coupled to the probe and configured to provide a plurality of harmonics for each of the plurality of electrical parameters, and
a controller coupled to the processor and configured to provide a third data from the second data by selecting a predetermined one of the plurality of electrical parameters and a predetermined one of the plurality of harmonics; and
employing the third data for said endpoint detection of the plasma processing step.

24. (New) The method of claim 23 wherein the RF generator provides a frequency of about 2 MHz.

25. (New) The method of claim 23 wherein the RF generator provides a frequency of about 27 MHz.

26. (New) The method of claim 23 wherein the RF generator provides a frequency of about 60 MHz.

27. (New) The method of claim 23 wherein the plurality of electrical parameters includes voltage.

28. (New) The method of claim 23 wherein the plurality of electrical parameters includes phase.

29. (New) The method of claim 23 wherein the plurality of electrical parameters includes current.

30. (New) The method of claim 27 wherein the plurality of harmonics includes first and second harmonics.

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31. (New) The method of claim 28 wherein the plurality of harmonics includes first and second harmonics.

32. (New) The method of claim 29 wherein the plurality of harmonics includes first and second harmonics.

33. (New) The method of claim 23 wherein the predetermined one of the plurality of harmonics is other than a first harmonic.

34. (New) The method of claim 23 wherein the plasma processing step includes dielectric etching.